To: gemathieus@mt.gov;jblend@mt.gov;msuplee@mt.gov;plavigne@mt.gov[]; blend@mt.gov;msuplee@mt.gov;plavigne@mt.gov[]; suplee@mt.gov;plavigne@mt.gov[]; lavigne@mt.gov[]
Cc: CN=Dave Moon/OU=R8/O=USEPA/C=US@EPA;CN=Tonya Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA[]; N=Tonya Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA[]; N=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA[]
From: CN=Tina Laidlaw/OU=MO/OU=R8/O=USEPA/C=US
Sent: Fri 6/10/2011 5:51:49 PM
Subject: Materials for our June 13th Technical Discussion on a statewide S&W Demonstration for Nutrients
List of S&W Assumptions06_08_11.doc
MT S_W DemonstrationJune 7w_brine.xls

In preparation for Monday's discussion on Montana's Statewide demonstration for nutrients, we wanted to share some draft materials for discussion. Please take a look at this information and let us know if you have any questions / issues that you'd like to add to this list.

The attached spreadsheet is a very preliminary analysis of 4 of the larger communities in Montana (with initial notes on some of the smaller communities). We thought it might be helpful to walk through the spreadsheet, discuss the preliminary results, and identify points where we agree and/or have outstanding questions. In addition, we wanted to take a few minutes to discuss the following items:

2012 DEQ rulemaking will include:
(1) numeric nutrient criteria for wadeable streams and the Yellowstone;
(2) rules for approving individual variances, and
(3) revised nondegradation procedures for nutrients.
Trading policy may or may not be in rule. If in rule, may be in 2012 rulemaking or subsequent rulemaking.
Does the State intend to submit SB 367 to EPA with 2012 rulemaking package?
Rulemaking to adopt general or individual variances would be addressed after the 2012 rulemaking.
At what point in the process will the S&W Demonstration be submitted to EPA? As part of the 2012 rulemaking? As part of the rulemaking for general or individual variances? Or will it be a document outside of rule that is submitted as supporting info when general or individual variances are adopted? If so, will the Demonstration be public noticed? Do stakeholders know MDEQ is developing a demonstration and how do you explain that to them since SB 367 exempts the State from needing to do such a demonstration? Have you talked with the lawyers about whether MDEQ can do a Demonstration under State law? For example, would the AG certify a general variance was adopted according to State law if MDEQ provides EPA with a Demonstration?
Is the intent to apply SB 367 to dischargers to the Yellowstone without any additional Demonstration?

Look forward to talking to you on Monday. My apologies for not getting this information to you sooner.

Tina

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DRAFT -

Community	Current Treatment Technology	Would the criteria apply? Or is there dilution capability?
Kalispell	BNR (modified Johannesburg); 3.1 to 5.4 MGD; avg. .12 mg/l TP; 10 mg/l TN.	EOP; Ashley Creek
Bozeman	some BNR now; 5-stage Barrdenpho; new plant will be BNR (1 mg/l TP; 3 mg/l TN starting in 2011); current 5.8 MGD; increasing to 13.9 mgd	Yes. Also Gallatin TMDL in the works.
Helena	BNR; 3 mg/l TP; 10 mg/l TN; design capacity of 5.4; current discharge ~3.0 MGD	Yes. WLA set in TMDL based on numeric criteria.
Butte	Discharges to Blacktail Tail? Technology is activated sludge (TN of 18.5 mg/l; TP of 2.11 mg/l); under Order to Construct to membrane BNR; current design is 8.5 MGD; talking about lowering to 6.1 MGD	Yes. EOP.
"Big 7" Communities that Discharge to Large Rivers - criteria wouldn't apply		
Missoula	advanced secondary treatment facility with biological nutrient removal and ultraviolet disinfection; 6-9 MGD	SSC; should Missoula be included?
Great Falls	conventional 2ndary activated sludge (max 21-MGD; avg. 10 MGD)	Missouri River
Billings	2ndary treatment; Design flow of 26 MGD (avg.) and 40 MGD max.	N/A. Discharge into the Yellowstone River.
Smaller Communities with Lower MHIs		
Philipsburg	7th sequential batch reactor tank	Yes.
Cut Bank		Yes
Circle		
Glendive		

Redlodge Havre Montana City Big Fork Highwood Belgrade	?? Separate WWTP? Part of gallaitin county.	

NOTE: Operation costs include energy and chemical costs only and do not include labor and mainten
NOTE: The numbers are intended to provide ROUGH ESTIMATES for discussion purposes and do not r
NOTE: Capital costs were assumed to cover a 20-year bond with 5% interest (used 0.0802 conversion
NOTE: MHI is based on data available on: http://www.ers.usda.gov/data/unemployment/RDList2.a
NOTE: Brine disposal costs are estimated based on calculations developed by Region 5. The city of M

Community Population	Number of Households (Population / 2.5) based on 2000 Census	Median Household Income (2010) - countywide MHI. Recommend updating for service area.	Current average household sewer bill per year (2008 / 2011)	Current average sewer fee as % of MHI
89,624	35,850	$45,594.00	$216.00	0.47%
90,343	36,137	$47,065.00	$372.00	0.79%
61,942	24,777	$52,317.00	$265.44	0.51%
32,949	13,180	$40,055.00	$162.00	0.40%
ouldn't apply				
108,623		$40,130.00	$152.14	0.38%
82,178		$40,434.00	$187.20	0.46%
144,797		$47,139.00	$218.28	0.46%
2,879	1,152	35806.00	200	0.56%
13,550	5,420	$29,000	$138.48	0.48%

9,756.00		$40,379	305.28	
16,632.00		$38,082	240.00	
			313.80	

lude labor and maintenance cost. As such, these numbers are on the low side.
n purposes and do not reflect the site-specific conditions at each plant.

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eflect the site-specific conditions at each plant.

factor)

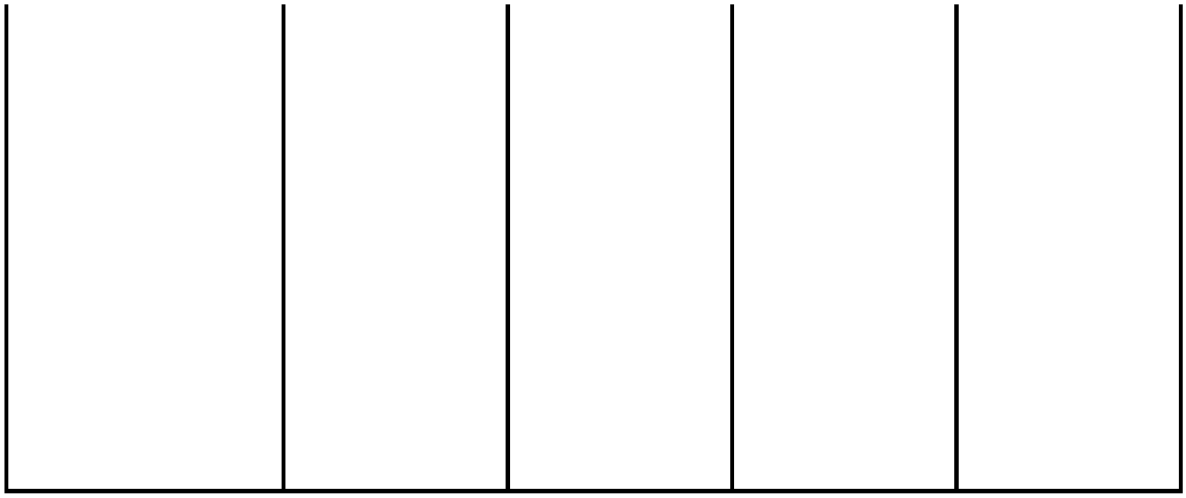
sp?ST=MT&SF=11A. These MHI values are lower than DEQ's values. For example, the USDA site showed the MH
adison's plant was used at the basis for the calculation since it was 3 MGD. This is a VERY rough estimate.

Notes	Capital cost (million dollars) to meet the numeric nutrient criteria (WERF)	Annual Capital cost to meet the numeric nutrient criteria (L4 WERF)	Annual Operations costs to meet the numeric nutrient criteria L4WERF
Sewer rates obtained from City in 2011. Plant ~WERF Level 2.	$36.18	$2,901,636.00	76,487.62
Sewer rates obtained from City in 2011. Plant ~WERF Level 2. Really Level 3 for TN and 1 for TP	$103.50	8,300,700.00	144,121.26
Sewer rates obtained from City in 2011. Plant ~ WERF Level 1.	$40.50	$3,248,100.00	1,001,100.00
Sewer Fee based on DEQ estimtes.	$12.70	$3,055,620.00	$1,158,900.0
	$64.77	$5,194,554.00	1,197,530.00
4000 gallons. Base rate $9.48 at 3000 gallons plus $2.06 for next 1,000 gallons	$12.70	$5,194,554.00	1,197,530.00

Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data.			
Sewer Fee and MHI based on DEQ estimates. DEQ MHI value less than the 2010 USDA county data.			
Sewer Fee based on DEQ estimtes.			

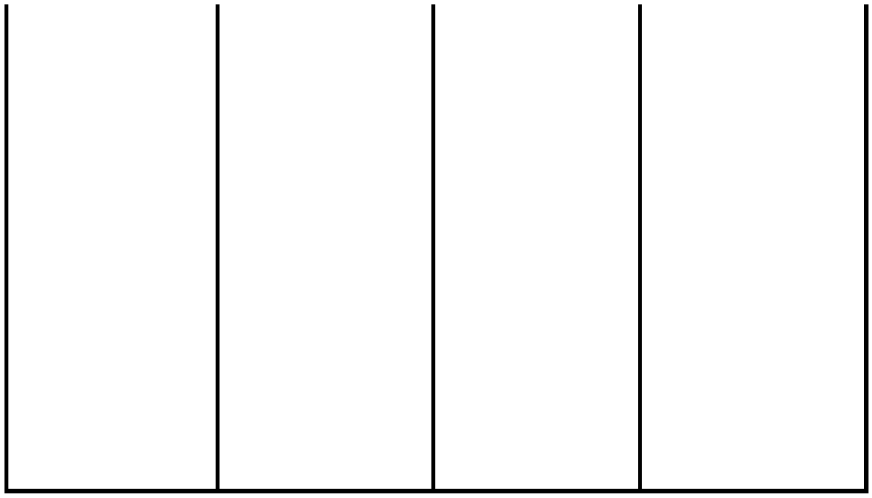
I for Cutbank at $29,000 compared to DEQ's estimates of $43,000. I inserted DEQ's MHI values into the table for

Disposal Costs ($/yr/community) - see note	Annual Capital and Operations cost ($) w/o brine disposal	Annual Capital and Operations cost ($) with Brine	Annual Cost per Household w/o brine disposal (increase in sewer rate)	Annual Cost per Household with brine disposal (increase in sewer rate)
$4,479,545.00	$2,978,123.62	$7,457,668.62	$83.07	$208.03
$8,959,090.00	$8,444,821.26	$17,403,911.26	$233.69	$481.61
$4,479,545.00	$4,249,200.00	$8,728,745.00	$171.50	$352.30
$4,479,545.00	$4,214,520.00	$8,694,065.00	$319.78	$659.66
	$6,392,084.00		$5,550.61	
	$6,392,084.00		$1,179.35	



Cutbank and the %MHI reduced from 3 to 2.14%.

Predicted average household sewer fee (w/o brine)	Predicted average household sewer fee increase (w/ brine)	Expected % MHI w/o brine	Expected % MHI with brine
$299	$424.03	0.66	0.93
$606	$853.61	1.29	1.81
$437	$617.74	0.84	1.18
$482	$821.66	1.20	2.05
$5,751		16.06	
$1,318		4.54	



WERF

24000

Level	Description	Capital Cost ($/gpd)	Operations ($1,000/yr/10 MG Treated)
Level 0	No N and P removal	7.3	696
Level 1	1 mg/l TP; 8 mg/l TN	12.5	1222
Level 2	0.1-0.3 mg/l TP; 4-8 mg/l TN	13.3	1861
Level 3	<0.1 mg/l TP; 3 mg/l TN	13.8	2517
Level 4	<0.01 mg/l TP; 1 mg/l TN	20	4319

Costs to Meet Criteria	Capital Cost($million/MGD)	Design Flow	Facility Upgrade Capital Costs ($million)	Annualized Capital Costs (Assumed 20-yr bond & 5% interest; $million/year)
Kalispell	6.7	5.4	36.18	$2.90
Bozeman	7.5	13.8	103.5	$8.30
Helena	7.5	5.4	40.5	$3.25
Philisburg	12.7	5.1	$64.77	$5.19
Butte				

Capital cost converted to annual costs: (5% interest)

0.0802

24000

take capital costs * 0.0802

1,563,900.00

848.49315

Annualized Capital Costs (Assumed 20-yr bond & 5% interest; $million/year)	Operations ($1,000/10 MG Treated)	Operations Costs ($Million/ year/ 1 MGD)	Actual Flow	Facility Upgrade Operations Costs ($million/year/10 MGD)
$2,901,636.00	2458	673.42	3.10	2,087.62
$8,300,700.00	3097	848.49	5.80	4,921.26
$3,248,100.00	3097	309,700.00	3.00	929,100.00
$5,194,554.00	3623	362,300.00	3.10	1,123,130.00
			4.00	

Membrane Replacement Cost ($24,000 /yr/1 MGD)*Actual Flow	Disposal Costs for RO Brine Disposal, Transport and Reinjection	Total Operations costs including membrane replacement
74,400.00		76,487.62
139,200.00		144,121.26
72,000.00		1,001,100.00
74,400.00		1,197,530.00
96,000.00		